

Congestion Mitigation

21ST CENTURY OPERATIONS USING 21ST CENTURY TECHNOLOGIES

TRAFFIC CONGESTION CHALLENGES

Demand for highway travel by Americans continues to grow as population increases, particularly in metropolitan areas. New highway construction that accommodates this growth in travel has not kept pace. Between 1982 and 2002, highway lane miles increased 3.0 percent while vehicle miles of travel increased 79 percent. The Texas Transportation Institute estimates that in 2001, the 75 largest metropolitan areas together experienced 3.5 billion vehicle-hours of delay, resulting in 5.7 billion gallons in wasted fuel and \$69.5 billion in lost productivity. And traffic volumes are projected to continue to grow. The volume of freight movement alone is forecast to nearly double by 2020. Congestion is largely thought of as a big city problem, but delays are becoming increasingly common in small cities and some rural areas as well.

WHAT WE'VE LEARNED

Simply put, highway congestion results when traffic demand approaches or exceeds the available capacity of the highway system. Though the concept is simple, it is not constant. Traffic demands vary significantly depending on the season of the year, the day of the week, and even the time of day. Also, highway capacity, often mistaken as constant, can change because of weather, work zones, traffic incidents, or other non-recurring events.



From a combination of recent studies and analytical work, it is estimated that approximately half the congestion experienced by Americans is what is known as recurring congestion, caused by known demands that exist virtually every day where road use exceeds capacity.

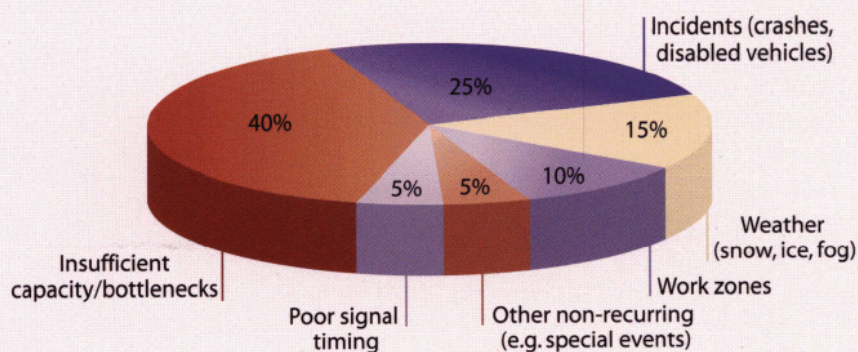
The other half is due to non-recurring congestion caused by temporary disruptions. The four main causes of non-recurring congestion are: **traffic incidents** (ranging from disabled vehicles to major crashes), **work zones**, **weather**, and **special events**. Non-recurring events dramatically

reduce available capacity and reliability of the entire transportation system. Travelers and shippers are especially sensitive to the unanticipated disruptions to tightly scheduled personal activities and manufacturing distribution procedures.

FUTURE DIRECTION

The Federal Highway Administration's (FHWA) Office of Operations is focusing its efforts on addressing both the recurring and non-recurring traffic congestion problems. In addition to providing substantial assistance to State and local transportation agencies as they develop projects to increase capacity and remove bottlenecks, the Office of Operations is also focusing on short-term

How is the congestion pie sliced?



Total delay: about 4 billion hours per year.



initiatives to mitigate congestion through effective system management and operations strategies. FHWA has designated congestion mitigation as one of its "Vital Few" priorities and is focusing resources on developing and sustaining regional partnerships to address all aspects of congestion. In particular, FHWA is working to reduce two of the most prevalent causes of traffic congestion: work zones and traffic incidents.

We are helping our State and local transportation partners develop regional frameworks for the integrated deployment of Intelligent Transportation Systems (ITS) technology such as traffic conditions monitoring, computerized traffic control systems, traveler information systems, and public transit information management systems. We are helping to facilitate the nationwide deployment of the 5-1-1 traveler telephone number, and we are developing and delivering guidance and training to help State and local agencies focus more on regional operations collaboration and coordination activities. These activities include identifying local congestion and system performance problems, solutions, and measures, as well as the adoption and implementation of strategies that cross jurisdictional boundaries, such as coordinated signal timing.

We are working with each of the 75 largest metropolitan areas to identify effective strategies to reduce delays caused by traffic incidents. By developing detailed technical guidance, training, and other assistance tools focused on formal traffic incident management programs, we aim to improve congestion by reducing the time to detect, respond to, and clear incidents. Multiagency partnerships involving transportation, public safety, and the private sector have shown that the duration of major incidents can be reduced 40 percent or more.

We are working with each of the States to identify effective strategies to reduce delays caused by work zones. Working at night or during off-peak hours, using innovative materials and construction techniques to reduce construction times, and using technology to provide timely information to travelers can significantly reduce delays caused by work zones. For example, State transportation professionals in Ohio implemented weekend and total closures as a strategy to accelerate work and minimize motorist delay. This practice of totally closing a section of roadway for a period of time and rerouting traffic has been extensively used in the reconstruction of the Spring-Sandusky Interchange. The benefit of this strategy is that it allows the contractor to work more safely and efficiently without traffic in the work zone, and it reduces the cost and total time to construct the project.